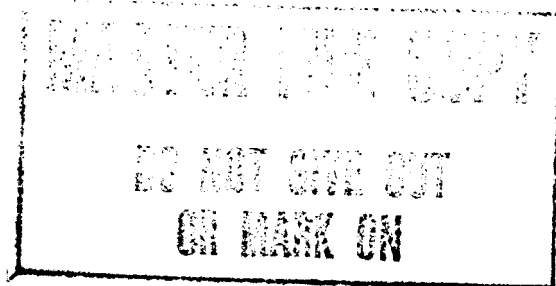




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# The Iranian Air Force: A Diminishing Threat

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An Intelligence Assessment

NSA Review Completed.

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*NESA 82-10174C*

*May 1982*

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# **The Iranian Air Force: A Diminishing Threat**

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## **An Intelligence Assessment**

*Information available as of 30 April 1982  
has been used in the preparation of this report.*

This paper was prepared by [redacted]  
Office of Near East-South Asia Analysis. Comments  
and queries are welcome and should be directed to the  
Chief, Persian Gulf Division, NESA, [redacted]

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This paper was coordinated with the Directorate of  
Operations and with the National Intelligence  
Council. [redacted]

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*May 1982*

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**The Iranian Air Force:  
A Diminishing Threat**

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**Key Judgments**

During the next five years the Iranian Air Force will not regain the overwhelming regional superiority it had under the Shah, but it will at least match any other Gulf air force.

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The regime probably will not try to bring the fighter inventory to levels reached under the Shah. It may try to recover a significant fighter capability by gaining unrestricted access to parts and foreign maintenance for US-built aircraft. This could return most of the 270-odd fighters in the inventory to operational status within a year. Or, the regime could assimilate a fleet of Soviet or other Western fighters. This would take years, although Iran could have some pilots retrained in a few months to fly different aircraft in combat if it were willing to depend on foreign maintenance personnel.

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Because there is little prospect that the US embargo on resupplying Iran will be lifted soon, Iran has had to consider supplementing or replacing its US-built fighter force.

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Tehran almost certainly will not build a fighter force heavily dependent on the Soviets.

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Meanwhile, air combat capability continues to decline. We estimate that about 100 fighter aircraft—less than a fourth of the prewar inventory—are operational.

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This reduction in air activity reflects a policy of conserving resources that is driven by:

- A scarcity of parts for US-built equipment.
- Shortages of qualified maintenance personnel.
- Combat losses of aircraft and aircrews.
- Declining supplies of munitions.

Political factors—the cutoff of aid from its primary supplier, the United States, and purges of its most experienced personnel—have limited Iran's air combat capability more than factors related to the war with Iraq.

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We estimate the Air Force still can fly at least 70 sorties a day but probably could not sustain that rate for more than several days. Such an effort would be so costly as to be implemented only as a last resort—for example, to defend against high-intensity counterair or strategic bombing campaigns.

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Nonetheless, the Air Force poses a limited threat to high-value strategic targets in the Gulf region. Although probably not the most effective weapon the Iranians might use against other Gulf states, the Air Force can stage small-scale surprise attacks that could be highly destructive and would have considerable psychological impact, heightening the fears of those states about their vulnerability:

- Iraqi population centers and economic and political targets—the conference center for the nonaligned movement summit meeting in Baghdad, for example—are the most likely candidates for strategic airstrikes.
- Ships and transshipment facilities in Kuwait and the United Arab Emirates that handle cargoes bound for Iraq are less likely candidates.
- An attack on Saudi Arabia is least likely because, regardless of the damage, it would raise the threat of concerted Gulf retaliatory strikes on key Iranian facilities that the Air Force could not repel.

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The recovery of the Air Force will be slowed by the Islamic regime's conscious policy of preventing the resurgence of a professional air force. Indeed, most of the experienced manpower trained under the Shah eventually will be replaced with personnel loyal to the regime, further reducing readiness and delaying a recovery of combat capability to even the level reached during the first few months of the war with Iraq.

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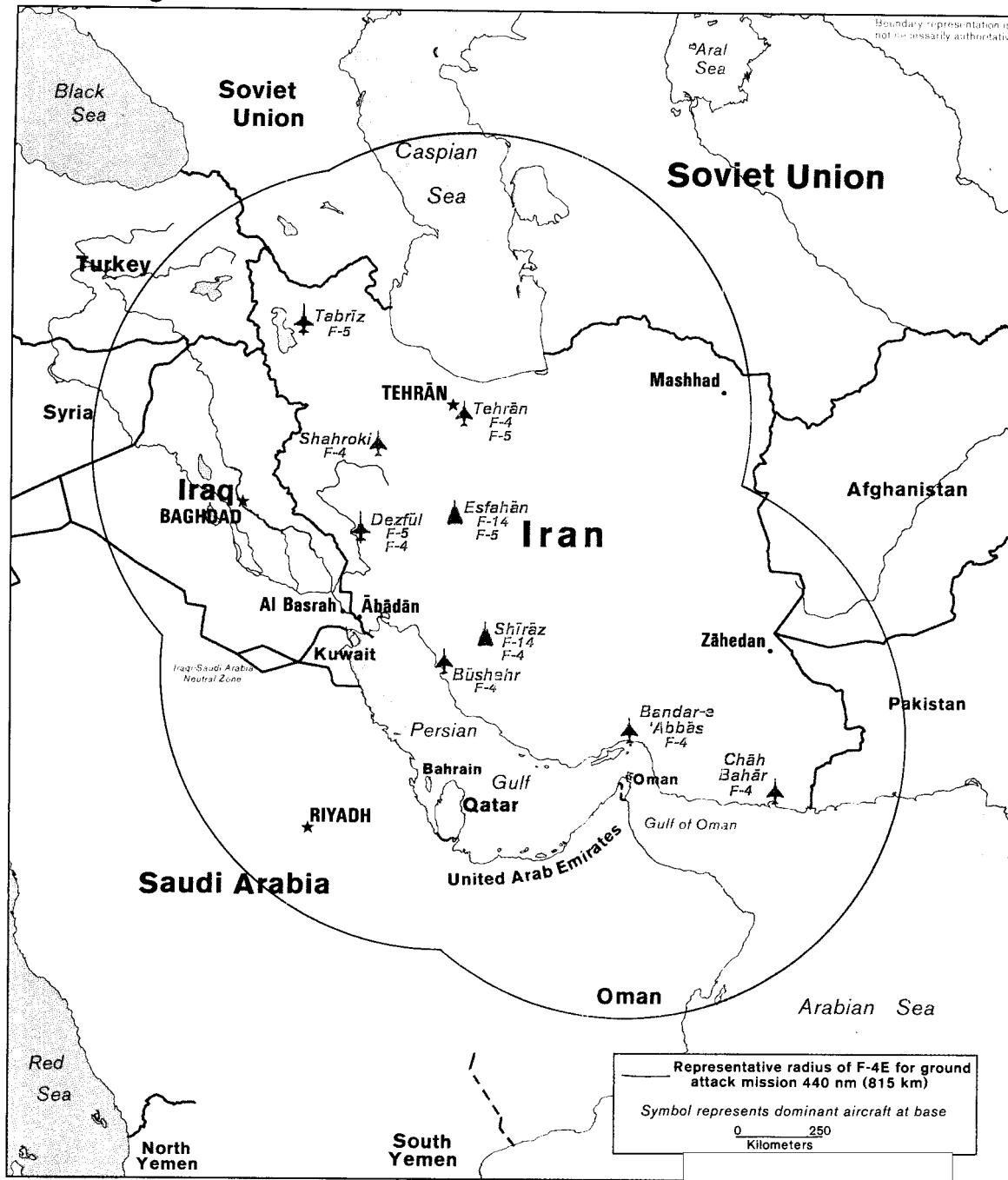
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# Iranian Fighter Aircraft Bases



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**The Iranian Air Force:  
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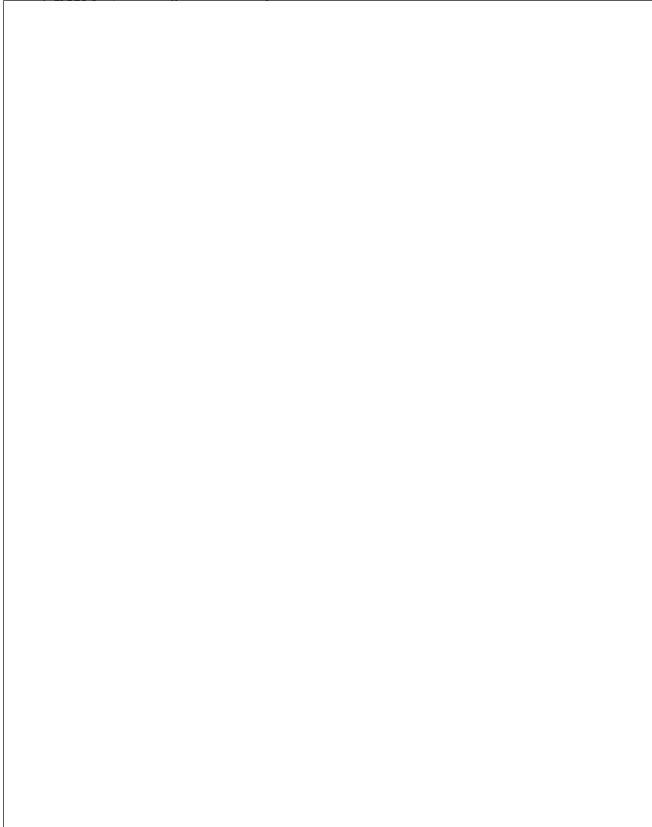
**Wartime Operations**

Never a significant factor in the Iraq-Iran war, the Iranian Air Force has even less impact today.<sup>1</sup> It no longer displays the consistent aggressiveness it did earlier



**Strategic Bombing**

From the outset, the Air Force's primary contribution to the war was psychological, to demonstrate the vulnerability of Iraq and other Gulf states to attack.



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**The Continuing Revolution**

Fearful that the Shah's military would threaten the regime, the Islamic government adopted a deliberate antimilitary policy, removed large numbers of experienced Air Force personnel, and placed a stigma on military service. At the revolution's outset in 1979 most full colonels and generals—estimates range as high as 85 percent—were purged; some were retired early, but others were jailed, exiled, or executed.

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Air Force readiness was harder hit by these purges than that of the Army because Air Force requirements for technical expertise are more critical. Virtually the entire Air Force high command, all commanders of bases, squadrons, and wings, and many staff officers and pilots were removed. Their positions were filled by Revolutionary Guards or other supporters of Khomeini, few of whom had any experience in managing air operations or maintaining and employing sophisticated equipment. Some of the commanders of lower echelons were chosen by Islamic *komitehs* elected by each unit's rank and file. Though representing the lowest ranking and least experienced Air Force personnel, *komitehs* have made operational decisions. The primary function of these organizations and various local security elements of the regime, however, has been to assure the political and religious reliability of military personnel.

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**Impact of the War on Islamification.** Iraq's airstrikes at the outset of the Iran-Iraq war in 1980 demonstrated the need to revitalize the Air Force to defend the country. Many purged professionals and retirees returned to active duty, most apparently motivated by patriotism. Some responded to the pleas of then President Bani-Sadr, who reportedly personally approached many former commanders and asked them to return to positions of responsibility. The regime allowed these officers to displace many Islamic officials, but the local Revolutionary Guards, mullahs, and *komitehs* continued to influence combat operations to some extent and to report on the reliability of the professional personnel.

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Through the winter of 1980, the Air Force was the only bright spot in Iran's war effort, partly because during Bani-Sadr's tenure professional air officers

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**Constraints on Operational Capability**

Political considerations—cutoff of aid from its primary supplier, the United States, and continued purges of its most qualified and experienced personnel—have been more important constraints on the Iranian Air Force than combat losses of aircraft and aircrews, expenditures of munitions, and wear on equipment.

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were allowed to manage air operations largely as they saw fit. The Air Force daily demonstrated that no target anywhere in Iraq was safe from damage, and it forced Iraq to shut down temporarily domestic oil production and to live under blackout restrictions.

**Renewed Purges.** Renewed purges during the last half of 1981 caused a sharp decline in morale and readiness.

Bani-Sadr's fall in the summer of 1981 released the pent-up resentment and animosity of the mullahs toward the professionals and prompted a new round of purges that was planned to last through October 1981. Although a supporter of the regime's Islamification policy, Air Force Commander Moinpur was able to stop the purges in early August.

He was unable to prevent their resumption in October and November, however, when at least 2,000 people were removed.

many people were reinstated in late 1981 and early 1982, and the regime apparently has accepted Moinpur's program of selective and orderly retirements spread over six months. Personnel with political or religious attitudes unacceptable to the regime were to have been removed by April 1982, and Islamification in the Air Force was to have achieved levels like those reached in the Army and Navy before the war.

#### Aircraft

We estimate that only about 100 of Iran's prewar inventory of almost 450 fighter aircraft are operational (see table 1). About 175 fighters have been lost during the war, and another 175 have been grounded because of a lack of parts, combat damage, removal of parts from one aircraft for use on another, and lack of domestic technical expertise.

**Table 1**

#### Iran's Available Fighter Aircraft, September 1980-April 1982

	September 1980		Wartime Losses	April 1982	
	Inventory	Operational		Inventory	Operational
F-4	195	98	90	105	42
F-5	175	105	80	95	48
F-14	76	30	5	71	10
<b>Total</b>	<b>446</b>	<b>233</b>	<b>175</b>	<b>271</b>	<b>100</b>

Note: These estimates reflect several assumptions and conditions:

Totals include combat-capable trainers and reconnaissance aircraft.

Estimates of wartime losses and operational readiness of F-4s and F-5s probably are accurate to within  $\pm 10$  aircraft.

Operational readiness rates for September 1980 were estimated at 50 percent for F-4s, 60 percent for F-5s, and 40 percent for F-14s.

#### Logistics and Maintenance

Shortcomings in logistics and maintenance apparently are the primary operational factors keeping nearly two-thirds of Iran's aircraft grounded. Information is insufficient to quantify the Air Force's specific problems in this area, but we believe that shortages of spare parts are a more important limitation on the number of operational aircraft than are deficiencies in maintenance expertise.

Were parts plentiful, the number of qualified maintenance technicians and ground crews probably would be insufficient to sustain sortie rates of even one flight per day per aircraft for extended periods. We estimate that, if necessary, Iran probably could generate at least 70 sorties per day but probably would be unable to sustain that rate for more than several days. Moreover, many of these aircraft would be flying defensive patrols which are rarely in combat and are more easily readied for subsequent flights than aircraft flying ground attack missions.

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**Internal Logistics System.** Shortcomings of the internal parts management and distribution system have seriously hampered Iran's ability to use properly the prodigious supplies of parts acquired before the revolution.<sup>3</sup> Modernizing programs assumed a long-term dependence on foreign sources of supply but had achieved a degree of self-sufficiency by stocking parts at depots for 540 days and at bases for 180 days of peacetime operations.

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The parts management system was designed to be computer-based, and though much of the hardware is operating, the parts listings have been incomplete since US personnel were ejected in 1979.

Iran Aircraft Industries (IACI) in Tehran has successfully done many major maintenance tasks on F-4s and C-130s, but it cannot completely overhaul engines, airframes, and electronic subsystems or perform some basic modifications required by the manufacturer.

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**Foreign Resupply.** Iran does not appear to have acquired dependable foreign sources of aircraft spare parts, and aircraft are kept flying largely by removing parts from one airframe for use on another.

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It has received limited amounts of parts for US aircraft from Western Europe and selected Third World countries from time to time, but Iran's efforts to purchase parts for US-built equipment generally are poorly managed, continue to seek a wide range of parts, and are largely unsuccessful.

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**Maintenance.** Maintenance is done almost entirely by Iranian personnel who can perform most day-to-day mechanical tasks but have difficulty repairing sophisticated electronic equipment and doing major engine and airframe overhauls. At the base level, Iran apparently has enough qualified technicians and ground crews to keep the reduced number of aircraft flying at low sortie rates,

#### Aircrews

Since 1978 the corps of qualified pilots has been reduced by at least 70 percent because of political events and the war, leaving at most 105 fully qualified pilots to fly about 100 operational aircraft (see table 2).<sup>4</sup> In addition Iran probably has between 100 and 200 pilots who are either fully qualified for rear-seat duty or were in various stages of fighter aircraft training before the revolution. Prior to the revolution, Iran had about 350 fully qualified fighter pilots (not including 145 qualified F-4 rear-seat pilots), a pilot-to-aircraft ratio of slightly less than 1:1.

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<sup>3</sup> The revolution interrupted ambitious Air Force plans begun in 1975 to achieve self-sufficiency in logistics and maintenance by 1981. Scheduled programs were to centralize and streamline the logistics organization, to build a new general purpose depot, to create a computer network for managing parts inventories and distribution, and to mechanize supply depots. None of these were fully implemented, but most important, training of Iranians to run the new systems was at a rudimentary level when the United States pulled out in early 1979.

<sup>4</sup> As used here, fully qualified refers to pilots who received a complete pilot training course in the United States or in Iran under US supervision and had at least six months of operational flying prior to the revolution.

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Table 2

## Iran's Fully Qualified Fighter Pilots

	Fully Qualified Pilots (1978)	30-Percent Attrition During the Revolution	Wartime Losses	Total Qualified Pilots	Pilot-to- Aircraft Ratio
F-4	145	44	72	29	0.7:1
F-5	150	45	64	41	0.9:1
F-14	52	16	1	35	3.5:1
<b>Total</b>	<b>347</b>	<b>105</b>	<b>137</b>	<b>105</b>	<b>1.1:1</b>

Note: These estimates reflect several assumptions and conditions:

It is assumed that pilots were killed or captured in 80 percent of the 170 F-4s and F-5s lost during the war.

Not included are another 145 qualified F-4 rear-seat pilots, some of whom also have been purged, killed, or captured.

Also not included are pilots who were in various stages of training prior to the revolution (100 in F-4 front and rear seats, 57 in F-5s, and 15 in F-14s).

This analysis suggests that:

- The availability of fighter pilots almost certainly has not limited the number of sorties.
- Because attrition of qualified pilots during the revolution probably has been greater than 30 percent, the overall ratio of fully qualified fighter pilots to operational aircraft is most likely less than 1:1.
- Pilot availability probably has not been a primary cause of the low intensity of the air war. The ratio of fighter pilots to aircraft is not significantly less than before the revolution, primarily due to the drastic reduction in the number of operational aircraft.
- Pilots of ground attack aircraft, particularly F-4s, have had a disproportionately heavy work load, and fatigue almost certainly has taken its toll in reduced effectiveness and increased aircraft and pilot losses.
- Irrespective of the precise level of pilot attrition, any maximum-effort air campaign would severely tax the corps of qualified pilots.

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- Lowered morale and motivation as a result of purges, mullahs' interference in operational matters, continued combat losses, and declining confidence in equipment.
- Flying aircraft with some subsystems inoperative or partly operative.
- Fatigue of the more experienced pilots after 19 months of heavy flight responsibilities.

Most of these factors influence the pilots' willingness to take risks. Given the lack of motivation and reduced confidence in equipment, we expect a greater reluctance by Iranian pilots to seek air-to-air combat or to penetrate heavily defended targets. [REDACTED]

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**Munitions**

[REDACTED] the Air Force is experiencing selected shortages of munitions which are influencing employment policies. [REDACTED]

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[REDACTED] We do not believe that aerial combat has been intense enough to deplete Iran's stock of 1,700 US-produced AAMs, but many AAMs almost certainly have been rendered inoperative or marginally operative by improper storage and lack of maintenance expertise, test equipment, and parts. [REDACTED]

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Although at low levels, stocks of most bombs probably have not been exhausted due to the slow pace of airstrikes. [REDACTED]

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Irrespective of past pilot proficiency, several factors will have increasingly adverse effects on future pilot performance, including:

- Falling level of training and experience of the corps as the number of US-trained pilots declines and Iranian-trained pilots increases.

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### Potential for Future Strategic Operations

Despite these limitations the Air Force retains some defensive capability and remains a threat to high-value strategic targets in Iraq and other Gulf states.

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A maximum-effort campaign would result in such high attrition that it probably would be used only as a last resort, most likely only if high-intensity counter-air or strategic bombing campaigns were initiated against Iran. In addition, a large-scale attack on, for example, Saudi Arabia would raise the threat of retaliation against Iran's oil transshipment facilities and the possibility of unacceptable economic repercussions. The Air Force would be unable to prevent counterattacks on Iranian facilities and would suffer heavily if subjected to a multinational counterair campaign.

Iran is more likely to limit attacks in the Gulf to isolated strikes against selected strategic targets—shipping bound for Iraqi or Kuwaiti transshipment facilities—and would hope that countries attacked would remain noncombatants, as Kuwait did following Iran's airstrikes last October. Iran also remains capable of striking Iraqi population centers and economic and political targets—the conference center for the nonaligned movement summit meeting in Baghdad this fall, for example, is a likely candidate.

Tehran has threatened to attack facilities in the UAE and Kuwait and shipping from the USSR bound for Iraq, but Kuwait is the only nonbelligerent Iran has struck. Airstrikes were conducted against transshipment points on the Iraqi border in November 1980 and against an oil facility in October 1981; neither had the desired effect of dissuading the Kuwaitis from supporting Iraq.

### Prospects

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As long as the war continues and US restrictions on the supply of US-built or US-licensed parts are in effect, we expect further gradual reductions in the number of operationally ready aircraft and a continued conservative employment policy. The Air Force's maximum potential sortie rate will continue to decline but at a slow pace. If Iran attacks other Gulf states, it is more likely to use small numbers of aircraft against selected strategic targets rather than large-scale attacks on a variety of facilities. Moreover, as a result of the war with Iraq, Iran almost certainly has concluded that attacks by naval commandos are more effective than airstrikes in destroying oil and port facilities.

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During the next five years the Air Force will not regain the overwhelming regional superiority it had under the Shah, but it will be at least a match for any other Gulf state. Even if unrestricted resupply of US-built aircraft resumed and an ambitious aircraft acquisition program were instituted today—both of which are unlikely—manpower problems would take years to resolve. [REDACTED]

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If parts were available and some major overhaul jobs could be sent abroad, most of the 270-odd aircraft now in the inventory eventually could be returned to operational status. Resupply of US-designed munitions and additional pilots then would be necessary to employ the force near its full combat potential. [REDACTED]

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The most recent purge may have run its course, but the recovery of combat capability will be slowed by the regime's conscious policy of preventing the resurgence of a professional air force for the next few years. Most of the experienced personnel trained under the Shah eventually will be replaced with personnel loyal to the regime, further reducing readiness and delaying recovery of even those levels reached during the first few months of the war with Iraq. [REDACTED]

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